

CLAIMS

What is claimed is:

1. A switching system, connectable to a communications
5 network, for transferring at least one data unit between a
plurality of nodes on the communications network,
comprising:

at least one input port connectable to the
communications network and operative to receive a logical
10 multicast data unit from the network;

at least one output port connectable to the
communications network and operative to transmit the logical
multicast data unit onto the network; and

at least one output port controller coupled between the
15 input port and the output port,

wherein the output port controller is operative to
replicate the received logical multicast data unit a
predetermined number of times within the output port
controller for subsequent transmission onto the
20 communications network at the output port.

2. The switching system of claim 1 wherein the output port
controller includes a lookup table comprising a plurality of
entries and the output port controller is further operative
25 to determine the predetermined number of times to replicate
the logical multicast data unit by referencing at least one
entry in the lookup table.

3. The switching system of claim 2 wherein the output port
30 controller is further operative to access identity
information contained in a header field of the logical

multicast data unit and use the identity information to reference the entry in the lookup table.

4. The switching system of claim 1 further including a
5 buffer memory coupled between the input port and the output port controller, the buffer memory being operative to store a single representation of the logical multicast data unit.

5. The switching system of claim 4 further including a bus
10 interconnecting the buffer memory and the output port controller, the buffer memory being further operative to provide the single representation of the logical multicast data unit to the output port controller by way of the bus.

6. A switching system, connectable to a communications
15 network, for transferring at least one data unit between a plurality of nodes on the communications network, comprising:

at least one input port connectable to the
20 communications network and operative to receive a logical multicast data unit from the network;

at least one output port connectable to the
communications network and operative to transmit the logical
multicast data unit a predetermined number of times onto the
25 network; and

at least one meter coupled between the input port and the output port,

wherein the meter is operative to determine whether the transmitted logical multicast data conform to predetermined
30 quality of service criteria by an analysis of the logical multicast data unit.

7. The switching system of claim 6 further including at least one buffer memory operative to store a single representation of the logical multicast data unit and
5 provide the single data unit representation to the output port for subsequent transmission onto the network.

8. The switching system of claim 7 wherein the buffer memory comprises at least one class queue.

10

9. The switching system of claim 7 wherein the meter is coupled between the input port and the buffer memory.

10. The switching system of claim 7 wherein the meter is
15 coupled between the buffer memory and the output port.

11. The switching system of claim 6 wherein the meter comprises a token bucket.

20 12. A switching system, connectable to a communications network, for transferring at least one data unit between a plurality of nodes on the communications network, comprising:

25 at least one input port connectable to the communications network and operative to receive a plurality of logical multicast data units from the network;

at least one output port connectable to the communications network and operative to transmit each logical multicast data unit a respective predetermined
30 number of times onto the network; and

at least one buffer memory operative to store a single representation of each logical multicast data unit and provide the respective logical multicast data unit representations to the output port for subsequent
5 transmission onto the network,

wherein the buffer memory is further operative to store the respective logical multicast data unit representations in a preferential manner based at least in part on the respective predetermined number of times the data units are
10 subsequently transmitted onto the network.

13. The switching system of claim 12 wherein the buffer memory comprises at least one class queue.

15 14. The switching system of claim 13 wherein the class queue comprises a first-in first-out memory.

15. A method of operating a switching system, connectable to a communications network, for transferring logical
20 multicast data between a plurality of nodes on the communications network, comprising the steps of:

receiving a logical multicast data unit at an input module of the switching system;

providing the logical multicast data unit to an output
25 module of the switching system;

replicating the logical multicast data unit a predetermined number of times within the output module; and

transmitting the replicated logical multicast data onto the communications network by the output module.

30

16. The method of claim 15 further including the step of referencing at least one entry in a lookup table included in the output module to determine the predetermined number of times to replicate the logical multicast data unit.

5

17. A method of operating a switching system, connectable to a communications network, for transferring at least one data unit between a plurality of nodes on the communications network, comprising the steps of:

10 receiving a single logical multicast data unit at an input port of the switching system;

analyzing the single logical multicast data unit at a meter of the switching system to determine whether the logical multicast data unit conforms to predetermined

15 quality of service criteria; and

in the event the logical multicast data unit conforms to the predetermined quality of service criteria, transmitting the single logical multicast data unit onto the communications network a predetermined number of times at an

20 output port of the switching system.

18. A method of operating a switching system, connectable to a communications network, for transferring at least one data unit between a plurality of nodes on the communications

25 network, comprising the steps of:

receiving a plurality of logical multicast data units at at least one input port of the switching system;

30 storing the plurality of logical multicast data units in a preferential manner in a buffer memory of the switching system based at least in part on respective predetermined numbers of times the logical multicast data units are

subsequently transmitted onto the communications network;
and

transmitting the plurality of logical multicast data
units onto the communications network at an output port of
5 the switching system in accordance with the preferential
manner in which the logical multicast data units are stored
in the buffer memory.

03763940.021501